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BULK PURCHASING AND THE COLONIAL PRODUCER

One of the more interesting experiments of this war has been the development of bulk purchasing to ensure supplies to the United Kingdom. During the last war, in cases in which oversea supply was left largely to the price mechanism, both consumers and producers had suffered. The shipping losses reduced both supplies in consuming countries and demand in the countries of export. The chief result was a widening gap between the rising retail price and falling payments to the producer, with the middleman's margin growing as turnover fell, and this was one reason why bulk purchase of various commodities was initiated early in the war.

The success of these agreements in procuring and directing supplies and in controlling prices has been demonstrated under war conditions and the case for their continuation for all overseas commodities still in short supply was elaborated recently by the Minister of Food.[1] They provide not only short-period price stabilisation both to the consumer and to the producing country, but by giving year to year contracts they enable a proper planning of agricultural production of annual crops in the supplying country and of rationed distribution in the consuming area. Since war contracts ran only for a year at a time, they were less suitable for permanent crops, in which the short run elasticity of supply is normally very low.

The purchasing arrangements have taken a peculiarly interesting form in the case of supplies from peasant growers in the British colonies, and have led to developments likely to prove permanent features of colonial policy. The principles involved are well illustrated by the West African Produce Control Schemes from amongst which the Cocoa Control has been selected for review. Since cocoa is an orchard crop, grown solely upon small peasant holdings, it is typical of most[2] of the agricultural exports of this part of the world : yet it is free from the local complications of the other crops in having no internal market. As the Gold Coast produces more than 50 per cent of West African cocoa output, the details will be drawn exclusively from this area.

THE ORIGIN OF THE CONTROL

The major countries consuming cocoa before 1939 were the United States and the industrial countries of Western Europe. Of these latter, Britain, France and the Netherlands administered colonial cocoa-producing areas, but the cocoa purchased was sold freely on the world market, except for the effects of tariffs, the U.S.A. and Germany between them importing about 50 per cent of world supplies in the decade before the war (see Table I below).

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[1] Mr. Strachey, *Hansard*, July 2nd, 1947.

[2] *e.g.* oil palm and coconut palm products, kola, citrus and other fruit.

During this period production was rising even faster than consumption, and world stocks were built up from 268,000 tons in 1927 to 361,000 tons in 1937.[1] The biggest manufacturers made a practice of carrying large operating stocks, almost a year's supply in many cases, while it has been estimated that stocks in consuming countries and afloat constituted more than 50 per cent of world exports in every year of the inter-war decades except 1936. West Africa had become the principal source of bulk cocoa, producing 60—70 per cent of world supplies in the previous decade, and most of this came from British West African colonies.

At the outbreak of war, Britain and the U.S.A. carried almost a year's stocks each, and with the loss of the German market the West African producer's position as a seller was extremely weak. Prices had fallen back to depression levels after the boom in 1936 (see Table II above) and although the price offered by the bulk purchasing agreement was no higher than the value current at the outbreak of war a further fall in Coast prices in a free market would not have been improbable in this season.

In the first war season control arrangements were undertaken by a sub-division of the Ministry of Food, set up in consultation with the Colonial Office and the Treasury and with the merchant shipping and manufacturing interests in the trade. Operations began in January 1940.[2] The season was already half complete and the arrangements for purchase and sale became more systematic with the establishment in August 1940 of a separate Cocoa Control Board under the aegis of the Colonial Office.[3] The form of the Control changed again in 1942, with the entry of the United States into the war, but in each period there are three aspects of special interest :

1. Purchasing arrangements on the Coast ;
2. Arrangements for shipment and sale abroad ;
3. Price policy in domestic and foreign contracts.

The first of these aspects can only be touched on briefly here, although it is an excellent illustration of the effects of price-stabilisation in a peasant economy. Some knowledge of the Coast arrangements is, however, essential to the discussion of other aspects of the Scheme.

PURCHASING ARRANGEMENTS IN WEST AFRICA

The contract to purchase entire crops at the stated price covered only Nigeria, the Gold Coast and the French Cameroons until 1943. Although some cocoa was produced in Sierra Leone, its quantity did not merit special treatment. Other colonies producing cocoa (notably Trinidad and Ceylon) were also omitted from the scheme for similar reasons, and the sole restriction upon sale by them to the United Kingdom was the licensing of export in an effort to restrict supplies to the level of reduced world consumption.

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[1] Cmd. 5845. Appendix C, Table III, p. 188.

[2] After a moratorium upon purchasing of a month.

[3] The first year's arrangements are of minor interest.

TABLE I

Net Imports into Major Consuming Countries

Year	Metric tons (000)							Per cent					
	World	U.S.A.	Germany	U.K.	Netherlands	France	*All other*	U.S.A.	Germany	U.K.	Netherlands	France	*All other*
1927	*459*	185	69	56	37	28	*84*	40	15	12	8	6	*19*
1928	*472*	161	74	56	45	34	*102*	34	16	12	10	7	*21*
1929	*539*	221	76	58	49	35	*100*	41	14	11	9	7	*19*
1930	*476*	163	74	57	50	37	*95*	34	16	12	11	8	*19*
1931	*527*	183	84	60	52	40	*108*	35	16	11	10	7	*21*
1932	*534*	210	76	67	42	13	*126*	39	14	12	8	2	*25*
1933	*542*	208	76	67	47	41	*103*	38	14	12	9	8	*20*
1934	*575*	240	100	68	53	40	*74*	42	17	12	9	7	*13*
1935	*654*	254	76	82	61	63	*118*	39	12	13	9	10	*17*
1936	*689*	304	75	108	66	47	*89*	44	11	16	10	7	*12*
1937	*641*	276	71	86	53	41	*114*	43	11	13	8	6	*19*
1938[1]	*620*	202[1]	78	128	74	42	*96*	33[1]	13	21	12	7	*14*

[1] Year of the ' hold-up ' by Gold Coast farmers.

TABLE II

Index Numbers of Cocoa Prices, Value of Output and Tonnage. Gold Coast.

1926–27=100

	1926/7	27/8	28/9	29/30	30/1	31/2	32/3	33/4	34/5	35/6	36/7	37/8[1]	38/9	39/40	40/1	41/2	42/3[3]	43/4	44/5	45/6	46/7	47/8
Cocoa prices[2] ex scale P.O.S.	100	101	75	67	39	38	37	28	31	36	76	28	29	31	26	29	25	27	43	54	101	146
Value P.O.S. ...	100	88	76	65	36	34	39	25	37	43	95	27[1]	36	31	21	31	22	22	42	46	42	...
Tonnage ...	100	87	101	98	94	89	108	93	105	124	129	98[1]	124	102	100	106	87	83	96	88	81	...

[1] Year of the hold-up. [2] Weighted mean price at port of shipment at time of marketing. Source: G.C. Department of Agriculture to 1940. Thereafter W.A.P.C.B. [3] With the introduction of a Flat Price Scheme in 1943, the P.O.S. price was paid at all scheduled buying stations, *i.e.* all stations on the roadway and Senchi Ferry.

For West Africa a Control Board was constituted in London to handle shipments and sales as well as policy in general. In each colony concerned a Controller was appointed to supervise the working of local arrangements, and he was advised by a group representative both of the U.K. firms and of the smaller buying firms established locally. On the West African Advisory Committee small as well as big shippers were represented but it contained neither consumer's nor producers' representatives other than Government officials.

The actual purchase of the cocoa was handled by the usual buyers and shippers, now acting as agents of the Control and paid upon a fixed schedule of costs plus commission at a standard rate per ton. No rationalisation of purchasing was attempted, each shipper being limited in his purchases to a fixed quota based upon past performance.[1]

The controlled price as published related to the Port of Shipment, the price received by the farmer in any area of the cocoa belt being arrived at by subtracting the published schedule of transport, brokerage and other authorised costs. Thus not only did the Scheme provide a price fixed for a whole season, but it became possible for the price due in each village to be calculated precisely. This was in marked contrast to the pre-war market in which the price fluctuated from day to day, and in which the farmer's information as to current price levels came chiefly from the broker.

SHIPMENT AND SALE OF COCOA ABROAD

To the price fixed at the Port of Shipment a further published schedule of costs had to be added. These varied in amount from colony to colony, but had the same general composition, consisting of fixed charges such as the local exporting duty,[2] lighterage and harbour dues, the sum of these giving the price per ton f.o.b. From f.o.b. point to the final port of destination, shipping costs and insurance against marine and war risks were paid on the basis of actual charges incurred.

Until 1942, shipment of cocoa was left to the accredited shippers, who claimed repayment of costs incurred from the W.A.P.C.B. Sale of cocoa shipped was also handled by shippers and their agents, though only on a commission basis. The Control received all profits[3] made on sales and guided selling policy by fixing a lower limit to the day to day sale price.

After 1942, however, both the shipment and sale of cocoa were taken over by the Control directly. Allocation of shipping space had become increasingly difficult and it had already been a source of discontent to the big shippers that priority of shipment was given to the small shipper who lacked Coast storage accommodation. Further, with the setting up of Government purchasing for the United States through the Commodity Credit Corporation,[4] the function

[1] 1936–39 in the case of long-established shippers. New shippers were assessed upon a variety of periods, selected after discussion with them by the local Board.

[2] £2 2s. a ton in the Gold Coast.

[3] *i.e.* the surpluses accruing over the c.i.f. price for cocoa in each port of destination have been put to reserve and are to be used for the benefit of the industry and the producer.

[4] Later the U.S. Commercial Corporation.

of the private shipper and seller disappeared, the Produce Control Board taking over the cocoa at f.o.b. point, and arranging shipment and sale directly. This reduced the Board's appointed agents on the Coast to the status of buyers, although both the title of shipper and the corresponding overheads and remuneration[1] were retained, the sole change in the schedule of marketing expenses being that the commission on shipment and sale (7s. 6d. a ton) was no longer paid.

The sale of West African cocoa had therefore become in 1942 a matter of Government to Government trading. The quantities supplied to each buyer were at first determined by the shipping situation, and later by the allocations of the Combined Food Board. At the end of the war, however, cocoa had become one of the scarce commodities, world demand even excluding Germany being, at the still controlled price-levels, very much higher than the pre-war level of supply. Supply, too, had fallen, being in 1945 about 92 per cent of the average of 1934–38 and less than 85 per cent of the 1939 level.

Allocation of world supplies has therefore had to be continued since 1945 by a special Committee of the International Emergency Food Council. Signatories to the Agreement to accept allocation did not include Brazil until the second post-war season, and the United States is still only a passive participant, being willing to accept allocations imposed, but being unable to enforce them by Government action since import control has been abandoned. The successful working of the allocations scheme depended in the first post-war year upon West African supplies. Sales in the first nine months of the allocation year were permitted upon interim allocations, enough West African cocoa being held in reserve to complete the final allocations of those countries who had failed to obtain their allotted quantity, owing to the over-purchasing of others.

With prices held at the low level obtaining till 1946, and with private purchase and sale permitted both in the United States and in Brazil, the system of allocations might well have broken down without this safeguard. Brazilian sales in the second post-war season are, however, now being handled solely through their Institut du Cacao at Bahia and their co-operation would ensure the success of allocation, if this continues to prove necessary, now that market prices have been allowed to rise freely.

Prices and Sales Policy, 1939–45

Terminal Prices

Wholesale prices of raw bean in terminal markets remained free in Great Britain till August 1940, and in America until 1942. Up till that time shippers sold through their agents in the usual way, at or above a reserve price fixed by the Control. For this service they were paid on a fixed commission basis, all profits accruing to the Control. During this period prices were rising in the United Kingdom, but remained weak in New York until 1941, owing to the apparent excess of supply over demand.

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[1] Prior to 1942 shippers were allowed overhead costs at two different rates. For those shippers with U.K. Head Offices not only were U.K. overheads allowed (at first 5s. and later 2s. 6d. a ton) but they were also allowed Coast overheads at a higher rate than 'shippers' established only on the Coast (£1 2s. 6d. instead of 16s. 8d.). After 1942, an increasing number of shippers have been paid at the *higher* rate.

When the British wholesale price was fixed at £35 a ton in 1940, the price paid by the Ministry of Food to the West African Produce Control Board was also stabilised ' at the free market price current in the United Kingdom at the date of the assumption of internal control by the Ministry.'[1] With prices now rising elsewhere it was later agreed to fix the price received by the Board from the Ministry at the level of the weighted arithmetic average price of all sales in the previous season including those made to the Ministry of Food. This time lag has meant a relatively favourable price to the British consumer, but since the British Government had accepted the position of residual buyer, the level of U.K. purchases was determined largely by the extent to which shipment was possible not only to Liverpool but also to New York, and elsewhere. In fact Great Britain accepted cocoa in excess of her usual requirements (compare Table I with Table III below). Much of the surplus tonnage has been utilised for the manufacture of margarine from cocoa butter.

TABLE III

Composition of Wartime Cocoa Purchases : U.K. and U.S.A.

	Purchases	1940	1941	1942	1943	1944	1945
		(000) tons					
U.K.	1. Total tonnage *consumed** ...	128	155	159	157	106	115
,,	2. Tonnage imported from Empire	119	135	151	122	75	N.A.
	Percentage from Empire ...	*93*	*87*	*95*	*78*	*71*	N.A.
		(000) tons					
U.S.A.	Total tonnage *imported*† ...	296	325	309	107	257	305
	Tonnage purchased from West African Board‡	135	151	27	89	112	170
	Percentage from West Africa ...	*45*	*47*	*9*‖	*83*	*43*	*56*

*Source : Imperial Economic Committee. U.K. consumption = withdrawals from bond. Empire proportion = withdrawn under preferential duty. Non-Empire cocoa from 1943 = chiefly French West African supplies marketed by W.A.P.C.B. Empire duty = £11 8s. a ton. Non-Empire = £14 a ton.

†Imports not consumption. No duty paid on cocoa imported into the U.S.A.

‡Source : White Papers on Cocoa Control, Cmd. 6554 and Cmd. 6950.

‖Imports of cocoa into U.S.A. prohibited for 9 months.

While the price paid to the W.A.P.C.B. was lower for the British than for the American purchasing agency after 1942, it had been higher in the first three war seasons, and the average is roughly the same. The wholesale price paid by manufacturers to their Governments in the two countries was fixed at £45 a ton in 1942. The wholesale price has been higher than the price received by the Board in each country, the surplus in each case accruing not to the Cocoa Control but to the credit of the consuming country, being used in Great Britain to offset subsidies on other foods. This principle of profit distribution was general in such contracts, but it might have been open to criticism when the opening up of shipping routes after 1944 made residual purchasing unnecessary, and the price paid by the Ministry from 1945 has in fact been higher than the controlled price.

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[1] Para. 27, Cmd. 6554.

In fact the prices paid for cocoa by both Great Britain and the U.S.A. have followed roughly the levels permitted for other foodstuffs purchased. (See Table IV below).

TABLE IV

Wartime Wholesale Price Indices. U.S.A. and U.K.

(1938 = 100)

	U.S.A.*			U.K.†		
	Cocoa Imports Unit Values	Imports Crude Foodstuffs	Home Prices received by Farmers	Cocoa Import Prices	Imports Food, Drink and Tobacco	Home Agricultural Prices
1938	100.0	100.0	100.0	100	100	100.0
1939	95.4	98.1	97.9	—	123	106.5
1940	100.0	94.4	103.1	139	146	145.1
1941	127.3	114.8	127.8	139	152	180.6
1942	175.0	153.7	163.9	147	167	218.3
1943	179.6	N.A.	197.9	160	172	210.7
1944	190.9	N.A.	201.3	159	181	209.7
1945	190.6	N.A.	(206.2)‡	196	195	215.1

*Source : Statistical Abstract of the U.S.A. Vol. 1944–45.

†Source : Cocoa Prices, U.K. Annual Trade Returns. Other indices, *Monthly Bulletin of Statistics*.

‡December 1944. 1945 prices not yet available.

There is no doubt that cocoa prices under free market conditions would have gone to much higher levels, after 1944, as in fact they have done[1] since October 1946, when price control was suspended in the New York market, but it is by no means certain that producers would have benefited, even had they been able to ship their cocoa.

Purchase Prices

At the same time prices paid in West Africa remained at very low levels until 1943 owing to the difficulty experienced in shipping the cocoa purchased. With the Government's policy of destroying cocoa surplus to shipments, coupled with the relatively low price being obtained by the Board, this low price to the producer was inevitable if the books were to be balanced. The prices being paid in each main season are given in the table following (Table V). Prices ex-scale were lower[2] in the mid-crop season (May–June) but the tonnage involved is small.[3]

The price stabilisation policy of the Buying Scheme has been of great benefit to the farmer despite the low levels of prices ruling in the first four years of the war. Whereas violent price-fluctuations had characterised the

[1] Spot prices in New York rose to 16 cents/lb. in October with the lifting of controls, and to 23 cents/lb. in December 1946. They are now standing at 34 cents/lb. These prices are equivalent to a rise in the Index given in Table III above to the following values : October =356, December=650, July/August=730.

[2] Especially in 1942 when a price of £9 6s. 8d. a ton only was paid as this cocoa was destroyed immediately on purchase.

[3] The midcrop is not obtained in all parts of the cocoa belt, some areas having merely a more extended main crop season instead.

TABLE V

Control Cocoa Prices paid to the Farmer, Gold Coast. Main Season Price only.

	1939–40	40–41	41–42	42–43	43–44	44–45	45–46	46–47
Price to Farmer* (£) ...	15.87†	13.1	14.9	13.1	13.1	22.4	27.1	51.3
Price Index ...	100†	83	94	83	83	141	171	323

*Ex-scale Buying Station.

†Control was instituted in the middle of the 39–40 season, therefore the farmers' price is not available for the whole period. The price quoted relates only to the latter half of the season.

pre-war years, wartime changes in farmers' income have been due chiefly to changes in the crop. Further the share of farmers' income in the total value of output has risen, not only because of the limitation of brokers' and shippers' margins, but also through the stabilisation of the market and the greater spread of price-information.

The speculative character of the pre-war market affected operations at every level of the industry and had placed greater emphasis upon successful marketing than on the quality or quantity of output even at the village level of transactions. With fluctuating prices making any steady farming policy difficult and placing such a high premium on successful speculation for farmers as well as brokers, fluctuations in the farmers' income were much amplified by profit or loss on sales. With the usurious rates of interest and forms of mortgage[1] common throughout the area, a farmer's chances of financial recovery after a loss, however, were virtually negligible and the farmers' indebtedness[2] to the brokers had become increasingly heavy.

Brokers, on the other hand, fared relatively well under this system, since they were liberally financed by the firms not only for current but also for forward purchases, and since they were better informed as to prices than the farmers. The Control's stabilisation of prices even for a season at a time, together with the increasing limitation of middlemen's margins both open and concealed, brought about through the spread of price information, have considerably increased the farmers' share in the total, and despite the low prices the evidence[3] suggests that rural indebtedness has if anything, declined amongst these farmers still operating, although it is still of considerable magnitude.

In the season following the reopening of the Atlantic sea-routes, the producers' price was raised by almost the same proportion as the ceiling permitted in New York, but the low prices of the first five war seasons had had by then far-reaching effects. From the farmers' point of view the control was thought merely to have stabilised prices at depression level (see Table VI below). Even in 1938, the price level has been very close to marginal prime cost and the wartime rise in other prices reduced the value received per ton still further (see Table II).

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[1] Interest rates of 50 per cent were the most common. Mortgages were given either at these rates or more commonly the farm was surrendered to the mortgagor who enjoyed the proceeds until the capital sum lent *plus* interest was paid back.

[2] The struggle against rural indebtedness has exercised the energies of the Administration to the full and great efforts have been made to encourage co-operative marketing and credit. Owing to the type of ' competition ' ruling, however, success has inevitably been small despite the tremendous drive of the Government officers throughout. Stable prices have been accompanied by a very rapid growth of the Co-operative Societies during the war.

[3] The practice of ' advances ' has declined. Also recent surveys (*e.g.* Co-operative Department Survey of Akokoaso) suggest that average debt per farmer has fallen. Further the balance of loans outstanding to Co-operative Societies at the end of each financial year has been reduced from £7,822 in 1939–40 to £1,225 in March 1946. Paid-up share capital of the Societies has risen from £24,700 to £35,100 over the same period.

TABLE VI

Cost of Living and Cocoa Price Indices.

	1939–40	1940–41	41–42	42–43	43–44	44–45
Cost of Living Index* (1939=100)...	(100)	151	156	168	169	170
Index of Farmer's Prices	100	83	94	83	83	141
Price Index deflated by Cost of Living	100	55	60	50	49	83

*Source : Gold Coast Department of Labour. The Labour Department Index does not reflect the full rise in the prices of non-food goods as it is based upon changes in the *prices authorised under Price Control regulations.* Retail prices were higher, especially in the villages. Further, food prices rose even in the farming areas, especially where cocoa farms were continuous and their owners very largely dependent on food imported from the towns.

Prime costs had also increased sharply in other ways, *e.g.* owing to the rise in the price of implements, which are largely imported, and to the wages demanded by hired labour, which was becoming increasingly scarce with the rapid growth of urban employment created by war conditions.

The policy of keeping purchasing power at the lowest level possible (in effect a policy of heavy direct taxes on the farmer) was justified[1] as a wartime expedient and it certainly drove farmers as well as their labourers into wartime pursuits, but its long term consequences for the health and vigour of the industry have been considerable. By 1942 and 1943 neglect and ' abandonment ' of farms was widespread[2] and even in 1945–46 the working population of many cocoa-farming areas had not returned to its pre-war composition, the absence of young adults being apparent both amongst farmers and their labourers.

The fall in output which has been continuous since 1937 (see Table VI) is due in different parts of the cocoa belt to different factors, the chief of which are the increasing attack of diseases and pests upon the tree[3] and the loss of soil fertility; but to this decline wartime factors have also contributed and the effects of these will be long-lived despite the rapid revival of farming with high cocoa prices, and the fall in urban employment needs. Cocoa trees once in bearing do not benefit from a fallow period, and the overgrowth of bush causes a temporary reduction of yields, while lack of farm sanitation has fostered the spread of black pod disease. Further there has been little or no planting or replanting during the war. In fact with the troubled history of the industry in the pre-war decade, planting rates have become steadily less than the replacement level and a further decline in output is possible until present new planting begins to take effect.

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[1] See Report on Cocoa Control, 1944, Cmd. 6554, p. 8, para 25.

[2] The Gold Coast Department of Agriculture estimated the proportion of farms ' abandoned ' to be as high as 20 per cent in some areas surveyed, but it is possible that some of these farms will be cropped again when their owners return to the villages. Unlike rubber cocoa trees suffer, however, from being left unharvested.

[3] *e.g.* Swollen shoot disease. This is estimated to have devastated 100,000 acres of mature cocoa by 1946, meaning a loss of about 25,000 tons of bean per year, cf. International Cocoa Conference Report, 1946. Damage caused by capsicts is also causing grave concern.

Decisions as to the level of farmers' prices lay as much with the Local as with the London Control Board, and the wisdom of having maintained such a discouraging[1] trend of cocoa prices must be debated in relation to the war production drive[2] in West Africa. Yet it must be questioned whether this conflict of short and long term ends need have arisen had the decision to process cocoa locally been taken at an early stage.[3] The scale of destruction finally rendered necessary could not so early have been foreseen but surpluses and low prices were expected and this precaution would have seemed wisest in view of the Board's liability to the British taxpayer.[4]

In part, the cautious price policy of the Board has been due in the early years of the war to uncertainty as to future price trends and unwillingness to set farmers' prices at a level which would mean loss to the British taxpayer during the war and which it might prove difficult to maintain should a price-stabilisation scheme continue to operate after the war, as later envisaged in the White Paper Report on Cocoa Control of 1944.

This argument for setting prices at a conservative level applies, however, only to purchases. Since the Control Scheme ' broke the link between the world price and that to the producer ', selling prices could without damage to the farmer have been allowed to go to higher levels.

Yet this is one of the features of the scheme which marks it out as a new experiment amongst colonial institutions. Attempts by producers at joint marketing and price-stabilisation have been frequent in the past three decades (although never before so successful in the case of peasant crops), but this is one of the first instances in which a consumer country[5] has underwritten some part of the risks involved in price-guarantees. While consumers have gained through controlled prices, producers have benefited from price-stability even though at purchase price-levels so low that the Control has accumulated large financial reserves. Further analysis suggests that the absence of this feature in the postwar arrangements considerably reduces their value both to consumer and producer.

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[1] Estimates as to costs of production per ton vary with the values ascribed to period of attaining maturity, length of bearing life and yield in full bearing. There is considerable variation in all these figures in different parts of the cocoa-belt. Even the most optimistic estimate, however, puts production cost (overhead and working) at £17—£20, excluding debt charges. (Cf. Memorandum by P. B. Addai, 1944).

[2] See Report on Cocoa Control, Cmd. 6554, p. 7, para. 25.

[3] This would have enabled encouraging prices to be paid to the farmer while the net contribution to export of edible fats in the form of cocoa butter would have been higher than that actually achieved in palm products, in which exports compete with internal consumption.

[4] More than 140,000 tons of beans (=about 56,000 tons of butter) had been destroyed by the 1942–43 season. Even with the *ad hoc* methods of extraction finally used shipments of cocoa butter from the Gold Coast in 1943 totalled 840 tons and in 1944 2,740 tons. Processing would have made possible longer storage before shipment, if necessary, with economy in shipping space and higher prices for the exported quantities.

[5] In this case risks have been shouldered by the British consumer, but the same might have been achieved through an international Consumers Organisation such as the I.E.F.C. or the Food and Agricultural Organisation.

The Future of Cocoa Marketing

The successful operation of the Cocoa Control Board has demonstrated the value and elaborated the technique of price stabilisation in a peasant economy. The decision to continue some form of stabilised marketing, taken in 1944, has the support of almost all sectors of the industry, especially that of farmers whose chief objection to the Control has disappeared with the steady rise of prices that has taken place each year since then; and the arrangements for the setting up of permanent Purchasing Boards (separately for each colony) for this purpose are now almost complete.

Statutory marketing of the West African cocoa crop had been strongly recommended by the Nowell Commission of Enquiry following the 1937 disturbances, but the system now being set up differs in several ways from the pattern then suggested, the most important of these being in the retention[1] of middlemen's services and ' competitive ' buying in the internal market; and in the undertaking of price-stabilisation guarantees for the farmer. As to the first of these, the detailed arrangements are not yet fully available but except for the abolition of buying quotas no fundamental departure from the wartime pattern is expected to occur in the purchasing and handling of cocoa to f.o.b. point. The implications of these internal marketing arrangements, although of great interest and of importance to the future of the industry, lie outside the scope of the present review and only such mention of them will be made as is required for the appreciation of terminal market problems with which we are chiefly here concerned.

The second of these differences, price-stabilisation, is a fundamental feature of the Marketing Scheme now in operation, but it had been rejected in the Nowell Report. For the Commission had concluded that ' in the absence of any international control scheme, Governments could not assume responsibility for guaranteeing the price of a commodity subject to such speculative influences as cocoa without incurring grave risks.'[2] In the Statement on Future Marketing, however, the view is taken that ' the experience of the war years has shown that Governments can achieve a stabilisation of seasonal prices to the West African producer despite heavy fluctuations in supply and demand.'[3]

This change of attitude is not wholly justified by wartime experience, since price-stabilisation in West Africa was part of a far-reaching system of international control, in which part of the West African crop was purchased under guarantee by the British Government and much of the remainder was sold in the United States to the U.S.C.C. and not until October 1946 in the open market. The risks feared by the Nowell Commission had been during the war accepted by the British taxpayer but there is little in the post-war circumstances to prevent their return.

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[1] Instead of organising purchases through Farmers' Groups (Gold Coast).

[2] Cmd. 5845, para. 506.

[3] Cmd. 6950, para. 6.

It is true that the Boards will start operations with the great advantage of ample financial resources[1] and that with cocoa, price-trends promise to be favourable for at least a decade although the average will be well below the present level. Yet the commitments of the Boards are heavy and the calls upon reserves for the physical and economic rehabilitation of the farming industry will be considerable.[2] It is therefore of interest to ask the mechanics by which it is proposed to deal with market disequilibria and speculation in the Scheme proposed.

Post-War Price-Stabilisation Methods

The decisions as to purchase prices from the farmers will be taken by the local Boards at the beginning of each season, whereas sale prices are to be the best obtainable in the open market. To conduct selling operations a selling agency with headquarters in the U.K. is to be set up. This will carry no stocks of cocoa, but will be empowered to arrange sales, securing its supplies for each contract by making a corresponding purchase from the West African Board at a price which allows only sufficient margin for selling costs plus a nominal profit. Thus, while producers' prices are to be fixed for a season at a time, selling prices secured for the West African Boards may be expected to fluctuate with terminal market factors such as changes in world prosperity, which had a marked influence on prices in the pre-war period. To quote again from the Statement on Future Marketing : ' . . . there will be no question of (the Board's) making a profit at the expense of West African cocoa producers. . . . Thus on the average of a period of years, it is to be expected that, apart from the allocation of funds to such special uses as are . . . (referred to in para. 15 of the Statement) . . . the average price paid in West Africa will be substantially equal to the average net price realised on world markets and that the Boards' buying and selling transactions will, therefore, approximately balance.'[3]

The balancing of the Boards' books will depend upon the interaction of four factors :

1. The sale price that is obtained on the terminal market.
2. Marketing and selling costs.
3. The purchase price paid to the farmer.
4. The needs of the industry at the farming level.

From the formula by which price-policy is to be guided, the long-run trend of sale prices[4] will determine the amounts available for the other three and it is of interest to assess the problems which will face the Boards in the future. Inevitably in a crop wholly dependent upon an export market the problems of world marketing will be conditioned by the framework of international trade and finance. It is envisaged[5] that the new Boards will operate in conformity with continued allocation or any new arrangements for world distribution of supplies that might be instituted. In order to appreciate the significance of any such arrangements some description of pre-war marketing conditions is necessary.

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[1] £20 million.

[2] See p. 15 below. Also Cmd. 6950§.

[3] Cmd. 6950, para. 23.

[4] Including those received by the Control whose profits have built up the present reserves.

[5] Cmd. 6950, para. 22.

The Determinants of the World Price.

The chief feature of the terminal cocoa-market between the wars was the extreme instability of prices both from day-to-day and in the longer run. Average annual prices of cocoa on the New York market show a high correlation with the level of U.S. National Income in current prices and this year-to-year cycle of change had superimposed upon it even sharper month-to-month and day-to-day fluctuations resulting from the operations of the handful of giant buyers and sellers by which the market[1] was dominated and from the highly seasonal character of supplies. The West African crop (60–70 per cent of world supplies) is purchased almost wholly between October and January, but owing to the incidence of the Brazilian and other South American crops, and also of the West African midcrop, there is ' no period of the year when fresh supplies are not either forthcoming or imminent.'

Conservative marketing in such circumstances had become impossible either for buyer[2] or seller. The Nowell Commission concluded that while conservative marketing might be possible without loss for the small shipper ' for the big shipper a conservative marketing policy was excessively difficult . . . (since) . . . *his sales might frequently be sufficient to depress prices against him* in the consuming market . . . a large shipper could hardly in the circumstances escape a more or less speculative policy even if he wished.'

The oligopolistic[3] character of the pre-war market has been much intensified by wartime developments : indeed the concentration both of buyers and of sellers[4] has become even more acute. The Marketing Boards which are to operate for the Gold Coast and Nigeria now are paralleled by the centralisation of Brazilian exports through the Institut du Cacao at Bahia, and of French colonial supplies through the Groupement National d'Achat du Cacao in Paris. British, Dutch and French purchases are likewise being conducted through single Government agencies upon a contract to contract basis within each season. In the United States, the ' free ' market has been restored but this was dominated even before the war by the Hershey Chocolate Corporation which was then ' the largest consumer of cocoa beans in the world; its annual requirements (being) said to amount to some 100,000 tons.'[5]

The freeing of prices in the United States has shown that speculative forces have not been diminished by the war, and it is to be questioned whether the West African Boards, any more than a big pre-war shipper, can without ' loss ' in the circumstances ' escape a more or less speculative policy, even if they wish.'[1] As the Nowell Commission Report emphasised ' the share of the Gold Coast and Nigeria in the total world supply of cocoa, viz. about half, would be insufficient to enable them to dictate the world price-level of cocoa, even if on general grounds this were desirable.'[2] The Boards can at best refrain from monopolistic practices to raise world prices but they can do little to prevent speculative downward pressure on price levels should this occur, except through counter-speculation. It is difficult to see how the selling agencies of the Boards can refrain from speculative selling if they are to base their sales procedure as enjoined[3] upon that which ' they may consider to be in the best interests of the producers for whom they will be acting.'

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[1] The largest single buyer was the Hershey Chocolate Corporation (approximately 100,000 tons), the largest seller the United Africa Company (about 40,000 tons). Cf. Nowell Report Cmd. 5845 §397.

[2] See Nowell Commission Report, Cmd. 5845 : ' the buying policy of manufacturers has on occasions appeared to be largely speculative and has even been described to us as the most important of the various speculative elements which have together been responsible for excessive fluctuations in the value of cocoa.'

[3] And hence the indeterminacy of the market price.

[4] Approximate size of crops : Gold Coast 200,000 tons, Nigeria 100,000, F.W.A. 50,000 tons, Brazil 130,000 tons.

[5] Nowell Commission Report, Cmd. 5845 para. 397, *i.e.* the Hershey Corporation's purchases were of the same magnitude as total annual *imports* to the U.K.

In a market of this type the ' free market price ' will reach different levels according to the operations of the different sellers and buyers. From the producers' point of view the lack of long-term price guarantees is not compensated for by the continuation of international allocation, for under the present arrangements price levels are determined by those ruling in the New York market, the centre of greatest speculation, so that the same criticisms apply.

If the Boards are to be asked now to take no more than a ' fair and steady return on all cocoa marketed,'[4] what guarantee are they to find that a fair return will continue when supplies are more ample? If consumers, through their Governments or other wholesale purchasing agencies, are not prepared now to underwrite through long-term guarantees some of the risks involved in the development of this industry, the producers' organisations must be left free to build up reserves to the maximum in times of high prices in order to meet producers' needs in times of slump.

THE FUTURE DEVELOPMENT OF THE COCOA INDUSTRY

Under the post-war arrangements, the producers' terminal market agencies can at best sell ' skilfully '. Yet with the market price indeterminate, within wide limits, they always will be open to the criticisms either[5] of their own producers (for accepting prices thought too low) or from consumer countries (for having allegedly exploited their position by over-charging, or discrimination, or other monopolistic practices) and their efficiency and fairness will be difficult to demonstrate. The selling agencies as such cannot lose, their purchase contracts and prices being arranged with the West African Boards *after* each terminal market sale has been effected. The questions of profit and loss fall to the Boards to adjust through the purchase prices fixed by them for the farmer : price-stability has only been guaranteed for a year at a time, and there is nothing to prevent a lowering of the price fixed after a few seasons should the level of world prices lead to a persistent ' loss ' in the Board's balances.

[1] Cmd. 5845, para. 419. [2] *Ibid.*, para. 506,
[3] Cmd. 6950, para. 21. [4] Cmd. 6950, para. 22.
[5] These criticisms may even be made simultaneously.

It is only at the level of the farmer's account that true losses will be shown and, without going too far into the principles of price-fixing in peasant economies, its importance needs no emphasis in this instance.. The present state of deterioration of West African cocoa farms has only to be contrasted with the financial well being of the Control Board to show that the balancing of books is not of itself a sound criterion of policy.

The true criteria of the marketing arrangements will be their effect upon production, the trends of which are at best stationary in the major producing areas, and even falling in some. In the Gold Coast where a steady decline has characterised the last ten years, this is due partly to the farmers' progressive disillusionment with cocoa during the difficult years of the 1930's, and it is here that the marketing scheme is having the most beneficial effect. With season-to-season price-stabilisation and the limitation of middlemen's margins increasing the farmers share in the value of output, and with the prevailing level of world prices, optimism in West Africa about the future of the industry is at its height.

Can these factors alone be relied upon to bring forth to the full the increased supplies of cocoa which the world market is wanting? For West Africa, at least, the general consensus of opinion[1] is that it is not. Changes in existing farming practice are necessary both at the biological and the economic level; and both will involve a sacrifice of immediate consumption in favour of development outlay which it will not be easy to secure from the peasant farmer.

The scientific staffs of the Colonial Service studying cocoa cultivation in West Africa emphasise that the trial-and-error methods of African cocoa cultivation of the past are not likely to reproduce the phenomenal expansion of twenty years ago. Cocoa diseases and pests are taking an increasing toll, while a decline in yields is also occurring on farms planted on unsuitable soils, whose fertility is rapidly becoming exhausted. New areas for planting are also limited by the growing competition of other uses for such land as forestry and food farming for urban markets. The further development of the peasant industry now depends very much upon the successful application of techniques being worked out by scientific research for the control of plant infections, and the choice of soils and planting material amongst other things.[2]

Some of the techniques required have already been tested and proved, since research into the problems of the West African grower has been provided for some years through Colonial Development and Welfare funds; with the transfer of responsibility for research to the Boards this work is to be continued upon an increased scale. A capital sum[1] of £1½ million has already been set aside for the purchase of an annuity which is to provide the revenues of the West African Cocoa Research Institute. Yet in this orchard crop, with its slow growth to maturity, results in some cases may take many years to achieve and a simultaneous attack upon the various problems might be more useful in the long run, providing the research staffs can be found. Insofar as increased provision for research either through the W.A.C.R.I. or through the G.C. Agricultural Service (financed so far from general revenues) entailed any further drain upon the Boards' reserves, it would reduce the amounts available for other uses, the chief of which is the maintenance of the price-level, bringing up sharply the conflict of long and short-term ends which the Boards will always meet. To the extent to which the future development of the industry involves the restraint of present consumption, the opposition of the farmers is only to be expected in a society in which the expectation of life is low, in which over large areas one's property is not inherited by one's own children and in which belief in Western science is not deeply rooted. Propaganda and information alone are not likely to convince the farmer of the necessity for changes which curtail his current income.

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[1] See (1) Cocoa Research Conference Papers, London 1945 Col. 192 H.M.S.O. (2) Conference Internationale du Cacao (London October 1946). Compte Rendu Officiel. Office International du Cacao et du Chocolat. (3) Report of Joint Conference of Manufacturers and Colonial Service Agricultural Scientists (Cocoa) held in London 1947 under the auspices of the Cocoa, Chocolate and Confectionery Alliance, Ltd.

[2] See Cocoa Research Conference Papers, *loc. cit.*

The difficulties which the Boards will face in the allocation of their reserves are evinced already in the Gold Coast where pressure from the farmers has carried the cocoa price[2] to the highest level since 1920. The maintenance of the farmers' price at or near this level in the near future may prove well within the Gold Coast Board's financial resources, but it is likely to involve the use of present surpluses should the post-war boom break, leaving dangerously small margins for the finance of other needs.

The effect of high prices to the farmer upon the economic strength of the industry is likely to be dangerous in even more fundamental ways. Firstly, it will favour any expansion which occurs along the old haphazard lines, with planting on unsuitable soils ; and it will further increase the present fragmentation and scattering of holdings[3] which make for high-cost and inefficient farming practice, with its dependence upon hired labour and its difficulties of adequate supervision.

Secondly, it will greatly increase the difficulty of securing the farmers' active co-operation in many of the measures required for the physical and economic health of the farms, especially where such measures involve costs to be borne out of current income. For example, the only means of control of ' swollen shoot ' disease, which has already devastated over 100,000 acres of mature cocoa on the richest soil of the Gold Coast cocoa-belt, involves the cutting down not only of infected but all contact trees. Despite the Government's vigorous efforts to inform farmers about this disease, which is a serious threat to the industry, there has been reluctance to cut down bearing trees and in order to control further spread of this virus, the Gold Coast Government has at last found it necessary to undertake the task by direct methods, taking the risk of militant opposition.[1] Since the effectiveness of this treatment depends upon re-inspection and re-treatment at regular intervals, the continued control of this disease in the absence of the farmers' co-operation, will involve a large and costly inspectorate whose efficiency and incorruptibility will be seriously tested while high cocoa prices make evasion worthwhile to the farmer.

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[1] A further £10,000 a year is provided by the G.C. Government for detailed field surveys, disease control and other research extension work (see p. 91 Report of the International Cocoa Conference, 1946).

[2] £75 a ton for the 1947–48 season. £93 a ton is the price published : of this £18 is to be retained for the price-stabilisation fund.

[3] Not only are holdings small and scattered all round a farmer's village but he may well own farms on land many miles away, which he can only visit from time to time.

Thirdly with the continuing scarcity of consumption goods the wartime inflation of prices is being carried further still. The official Cost of Living Index has risen rapidly since 1945, standing at 192 in June last year and at 209 in June 1947, respectively. Although the money price for cocoa has raised to an index of 323 last season, its real value in terms of the official index quoted was about 160 ; while if the full rise in retail prices were allowed for, the real value of last season's price would be very near that in 1939. With a continuing scarcity of imported consumer goods to face, no improvement in the farmers' position is likely to result from the further rise promised for next season. The payment of high prices now may well do more to swell the profits of the traders, both small and big, than to increase the financial strength of farmers as a group.

Although the high prices following the end of the war, by bringing manpower back to cocoa-farming, have increased the intensity of cropping on existing farms and will stimulate planting, with the adverse environmental factors now at work it is by no means certain that the West African industry will hold its own. Manufacturers' anxiety about future supplies[2] is stimulating the search for new planting areas both elsewhere[3] in Africa and in the Far East and even if West African output is maintained the efficiency of peasant cultivation may well be challenged by plantation methods with cocoa repeating the history of the oil palm trade. Or worse still from the consumer's point of view, efforts to establish cocoa elsewhere may prove unsuccessful and the continuation of scarcity and high prices inevitable.

It is for these reasons that the present price policy of the Gold Coast Board, although it may prove financially possible for some years, is a matter for concern not only to the producer but also to the consumer. In addition to the problems of maintaining research upon an adequate level in the face of farmers' demands for ever higher prices, the Boards will find difficulty in getting the results of research incorporated in existing farming practice, if it continues to pursue the present policy of paying a single high price which actually rewards the farmer for his evasion and obstruction.

[1] See Progress Reports: Gold Coast Ten-Year Plan, 1947, p. 5.

[2] See Cocoa Conferences, *loc. cit.*

[3] In West Africa expansion is possible in French West Africa, Sierra Leone and the Belgian Congo. The United Africa Company has begun experimental planting of 6,000 acres in the Belgian Congo. This if successful will be developed along plantation lines. Plantations may also prove successful in the East Indies.

These difficulties could be obviated to some extent by a price-policy designed to reward the farmer for the required adaptations, by supplementary payments over and above the basic price[1] for the harvested crop. For example much of the opposition to the ' Swollen Shoot ' campaign could be removed by the payment of replanting subsidies both in cash and through the provision of free planting material. More careful preparation of the bean for marketing could be secured by a system of price-differentials for quality which increased[2] the farmers' returns if grading were undertaken. Suitable incentive payments to promote other ends, when research recommends these as desirable, can be devised and with the new marketing arrangements it would be a relatively[3] simple matter[4] to put these into effect.

Such a system of prices would have many advantages :

1. It would enable the farmer's basic price to be fixed as a ' safe ' level in relation to world trends, while at the same time keeping his average returns (received both from basic and supplementary payments) at the level of the ' average net price received on world markets ', as laid down in the last White Paper (Cmd. 6950, para. 23).
2. It would be very much more flexible than a single price and could be adapted to stimulate the activities necessary to the industry's health.
3. It would be more equitable in that it would enable the present profits to be used partly for the rehabilitation of devastated areas, whose farmers get nothing from the present high prices. Since the devastated area is one of the most productive in the cocoa-belt, replanting might do more to stimulate efficient increases in output than new planting elsewhere.

Yet this suggestion is likely to be opposed not only by the administrative staffs of the marketing scheme to whom it means more trouble, but also by the farmer for the same reason. Further, the farmer may oppose the scheme for fear of its producing a glut of supplies in the future. Without some guarantees against long-run market risks, the present producers of the world's output may shortsightedly prefer the immediate returns which can be reaped in the prevailing scarcity to the problematical advantages of an increase in efficiency.

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[1] In the Gold Coast the present price would be too high for a system of differentials. Not only is it dangerously near the probable trend of the world average but it involves the payment of much higher inducements if they are to be effective.

[2] Price-differentials as paid in the past did not reward the farmer for the trouble of grading since they were at best so calculated that he got the same price for 2 tons of Grade II as for a ton of Grade I and another of Grade III separately.

[3] Price-differentials and subsidy payments are naturally more complex to operate than the present single price payment, and may be liable to abuse by unscrupulous brokers. Yet the farmer can always sell through the Co-operative Societies whose network is now widespread. War-time experience suggests that the introduction of a multiple price system may do more to stimulate the further growth of the Co-operatives than any amount of Government propaganda and assistance.

[4] Opposition may be expected from the buying agents of the Boards, not only because it will increase the labour of cocoa buying, but also because a multiple price system may well interfere with the forms of imperfect competition which have grown up in the retail trade which constitutes the other and more important part of their activities (Cf. Cmd. 5845).

The situation has been summed up by a leading authority[1] on cocoa cultivation in the following words :

> I would however insist that cocoa is the most sensitive of crops ; . . . . if the supply of cocoa is to be assured in the future, *the consumers* must be prepared to see that the plant gets what it wants in the way of conditions of growth and that it goes on getting it.

In the case of cocoa, consumers can hope to influence the price-policy of the Boards for the good of the industry as a whole, since under the present arrangements a Consumers' Consultative Committee had been set up which can make representations to the Secretary of State regarding the Boards' operations. The influence which this body may exert depends, however, more upon the political than the economic relationships of the consumers and producers concerned. While it may prove sufficient to guide the fortunes of the cocoa farmer, if its influence is wisely used, it offers no solution in principle to similar problems facing producers of other permanent crops whose consumers are more widely scattered.

A more general solution to the problems of production and supply of permanent crops lies in the extension of bulk contracts. For long-term price guarantees would be worth while from the point of view of consumer countries, providing price policy was directed in producing areas to increasing output and efficiency and wholesale purchasing agencies[2] might be willing to guarantee a ' fair ' price to the grower in exchange for a decisive voice in production and price-policy. Yet there are many difficulties attaching to contracts undertaken for the long periods ahead the grower requires. With annual crops, annual revision of contracts and prices is possible before the planting season, but with the permanent crops planting takes place many years earlier ; and pressure for the revision of contract terms, if not actual repudiation, is to be expected from producers (cf. tea) or consumers (cf. rubber) if too great a divergence of contract from free prices is thought to be occurring.

One reason for this difficulty is that in permanent crops, more than in annual varieties, the farmer's calculations are based not upon one price but upon two : a ' basic ' price[3] which will cover prime costs[4] on established farms ; and an additional margin required to finance extensions and innovations. On the latter form of outlay he must gamble,[5] since returns will not be earned for many years.

While the market price paid for an annual crop can be so calculated as to cover both, together with a margin, if necessary, to induce the farmer to plant this crop rather than another, a single price cannot achieve the same with a permanent crop in which the two issues have to be considered separately.

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[1] Sir Harold Tempony, Agricultural Adviser to the Secretary of State for the Colonies, speaking at the International Cocoa Conference, 1946.

[2] *e.g.* Governments, or manufacturers' associations.

[3] In constant values.

[4] Costs to include ' normal profits '.

[5] Mr. John Cadbury has recently estimated that investment in cocoa planting involves price-estimates covering 25 years. See International Cocoa Conference papers, *loc. cit.*

It is precisely here that wartime experience with cocoa has been most valuable. The ' breaking of the link between the world price and that paid to the producer ' makes possible very flexible bulk-contract terms and enables the two price-levels to be determined upon quite independent grounds. Within this framework it is possible to devise forms of contract which give the producer the benefit of the ' average net world price ' in two parts: a guaranteed 'basic' price at a fair level; and a price element which ensures for producer and consumer that a fair proportion of the surplus over the basic price is devoted to the development[1] of the industry. Such a contract would also assist in guaranteeing from current production, supplies[2] for manufacturers in the contracting consumer countries, while reducing considerably the amount[3] of cocoa which the selling agencies have to place through the terminal market.

With the present sellers' market in cocoa, the producers' representatives may be difficult to convince of the advantages of some such more rational arrangement. The producers' position has been greatly strengthened by the introduction of this statutory marketing scheme but as the history of permanent crops shows, unilateral action by producers has never yet succeeded in breaking the alternate cycles of exploitation of consumer by producer and producer by consumer : yet it may require a change in market conditions to convince the farmer of the need for further stabilisation of world demand.

P. ADY.

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[1] *i.e.* to increase supplies and efficiency and therefore lowering costs and prices.

[2] And therefore reducing the level of stocks which they must carry.

[3] This alone would benefit the seller by reducing his vulnerability to speculation.

COAL DEVELOPMENTS, 1946-7

An attempt will be made in this paper to estimate the progress of the industry towards its production targets, and the outlook for the coal consumer in the immediate future.

PRODUCTION TRENDS

The first step was to calculate the monthly rate of coal output corrected for seasonal fluctuations and converted to annual rates.

When calculating seasonal variations from the 1944-6 figures, special allowance was made for the miners' strike in 1944, the early Easter in 1945, VE Day, VJ Day, and the late Whitsun in 1946. The seasonal elements apply therefore to a standard year, in which Easter falls entirely in April, Whitsun in May, and there are no special national holidays. The elements for each month are given in Table I. They apply to the average weekly production in each month.

TABLE I. *Seasonal Elements in Coal Production*

January	—.09	July	—.13
February	+.08	August	—.60
March	+.20	September	+.09
April	—.19	October	+.19
May	+.16	November	+.21
June	+.10	December	—.11

By substracting these elements from the estimates of *total*[1] production given in the *Monthly Digest of Statistics* and multiplying by 52 the appropriate annual rate can be found. Table II shows the annual rate of production for each month since January 1944 (with corrections for the early Easter in 1945 and the late Whitsun in 1946[2]).

TABLE II. *Seasonally Corrected Estimates of Total Coal Production*
(Average production for each month expressed as an annual rate.)
(millions of tons)

	1944	*1945*	*1946*	*1947*
January	202	187	182	198
February	196	188	184	192
March	178*	191	186	189
April	190	186	189	201
May	198	156†	185	189
June	190	191	190	195
July	199	183	188	192‖
August	197	161‡	191	
September	194	184	191	(193)§
October	192	185	192	
November	192	183	192	
December	190	184	194	

* The 1944 mining strike mainly affected this month. † VE Day. ‡ VJ Day.

‖ Due to the fact that many miners took their holidays in July instead of August, the usual seasonal correction could not be applied and the corrected figures for the 2 months were averaged. § Based on a forecast of 3.79 million tons' weekly average.

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[1] Mined and opencast.

[2] It was assumed that a day's national holiday involves a loss in output of 800,000 tons and a fall in consumption of 400,000 tons.

Production shows, therefore, an almost continuous downward trend until the second half of 1945, when it was running at an annual rate of about 183 million tons. In 1946 output recovered to a level of over 190 million tons at the end of the year.

Production early this year was at high level, considering the loss of output in February and March owing to transport delays, and the trend up to April indicated the possibility of achieving a rate of 200 million tons. The advent of the 5-day week showed some recession followed by a partial recovery, but the attainment of 200 million tons now seems unlikely. It appears, however, that this year will be treated as a 53-week year by the authorities, since May was treated as a 5-week month (instead of 4-week as normally) in the Ministry of Fuel and Power's statistics. The extra week which will apparently be added will, of course, be at the end of the year, *i.e.* that ending 3/1/48, which includes a New Year and is, therefore, not likely to be a week of full production. This extension of the year amounts in fact to increasing the year's coal output by some 3 million tons, and an average annual rate of 197 million tons will provide the 200 million tons target output. The average rate for the first nine months has been under 194 million tons and the average rate for the remainder of the year will therefore have to be over 206 millions if the year's target is to be fulfilled. (At the end of September output is currently running at a rate of about 198 millions).

The prospects of long-term expansion of output are being endangered by the failure to maintain the expansion of the labour force earlier in the year.

Consumption Trends

Table III shows seasonal elements in total[1] consumption, and Table IV seasonally corrected consumption.

Consumption also shows a true minimum at the end of 1945, between the war-time level of industrial production and the full resumption of peacetime demand. The rate in the latter half of 1946 indicates that at least 195 million tons per annum were required for a full level of production, granted the absence of an overall plan for rationalising industrial production (by concentration and the elimination of luxury output) and the lack of a comprehensive scheme for domestic rationing.

Consumption was forced down in February and March, at the cost of a considerable loss of industrial output. Its level during the summer seems to have been low. Since the industrial labour force has increased, consumption might have been expected to be at an annual rate of 12 million tons or so higher than it actually was. Approximately 5 million tons of this was due to the drastic cuts made in ' overseas shipments and bunkers ', another 2 or 3 millions to the exceptionally good weather, and the remainder to cuts of one sort of another (railways, domestic and some continued industrial shortages).

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[1] Including ' overseas shipments and bunkers '. These are not subject to the seasonal pattern of inland consumption, but they are too small a proportion of total consumption to affect the seasonal elements greatly.

STOCKBUILDING

Diagram A shows the seasonally corrected movements in production and consumption since January 1946. The gap between production and consumption represents the seasonally corrected rise or fall in *total* stocks. The seasonally corrected figures for *total* stocks are given in Table V. They were obtained by applying the seasonally corrected movements in stocks each month to the estimate of stocks at the end of October (given in the *Monthly*

TABLE III

Seasonal Elements in Coal Consumption

January	+.42	July	—.45
February	+.44	August	—.62
March	+.37	September	—.25
April	—.13	October	—.07
May	—.04	November	+.21
June	—.22	December	+.26

TABLE IV

Seasonally Corrected Estimates of Total Coal Consumption

(Average consumption for each month expressed as an annual rate).
(Millions of tons.)

	1944	*1945*	*1946*	*1947*
January	192	192	189	194
February	192	194	189	188
March	192	190	194	184
April	193	190	193	191
May	195	177*	190	181
June	191	192	195	184
July	196	188	194	184
August	192	180†	196	191‡
September	194	188	194	(186)‖
October	197	186	194	
November	196	184	196	
December	193	184	198	

*VE Day. † VJ Day. ‡May be abnormally high because of greater staggering of holidays. ‖ Based on a forecast of 3.32 million tons weekly average.

TABLE V

Seasonally Corrected Total Coal Stocks

(The level corresponding to total stocks at the end of October : millions of tons at end ofmonth).

	1944	*1945*	*1946*	*1947*
January	24.3	22.2	16.4	12.3
February	24.6	21.7	16.0	12.6
March	23.3	21.8	15.2	13.1
April	23.1	21.4	14.8	13.9
May	23.3	19.8	14.5	14.6
June	23.2	19.6	14.0	15.6
July	23.5	19.2	13.5	+
August	23.9	17.7	13.2	16.3
September	23.8	17.3	12.8	
October	23.4	17.1	12.7	
November	23.0	17.0	12.4	
December	22.7	17.0	12.0	

+ No estimate can be made for this month since the earlier holidays taken this year make the seasonal correction elements of little use.

Digest of Statistics). They therefore show the level of stocks at the end of each month expressed in terms of the corresponding end-October level. This series for 1946 and 1947 is shown graphically in Diagram B.

The persistent downward trend is very strongly marked, culminating in a corrected level of 12 million tons at the end of 1946,[1] a level which we know from experience means a danger of industrial stoppage. The increase in stocks this year was due rather to lower consumption than to higher production compared with 1946. This can be seen from Diagram A.

The target announced by the Government for stockbuilding is 15 million tons of *distributed* stocks at the end of October. This was interpreted[2] as indicating *total* stocks of 18 million tons, but non-distributed stocks have fallen so sharply that it seems *total* stocks of 16 million tons will be adequate to provide the Government's target for *distributed* stocks. This paper deals with *total* stocks since movements in these reflect only changes in consumption and production, while movements in *distributed* stocks reflect also a separate policy decision on the proportion of stocks to be held as *distributed* stocks.

The fall in non-distributed stocks may imply a very wise decision in view of possible winter transport difficulties, but it has made the figures of *distributed* stocks rather misleading. Fifteen million tons *distributed* stocks represent much less security when there are 1 million tons of other stocks than when there are 3 million tons non-distributed.

Since 16 million tons (corrected) *total* stocks had in fact been reached at the end of August, it seems likely that despite the Grimethorpe strike the Government's restocking target will be achieved. Sixteen million tons total stocks at the end of October will be enough provided there is no fall in seasonally corrected stocks thereafter. The monthly levels of total stocks during the winter corresponding to 16 million tons at the end of October will be as follows (the levels last year are given in parenthesis) :—

	Millions of tons
November	16.0 (12.3)
December	14.2 (10.2)
January	12.1 (8.3)
February	10.7 (7.2)
March	9.8 (7.0)
April	9.6 (7.4)

These stock levels (or higher) will be achieved if seasonally corrected rates of production are equal to (or higher than) seasonally corrected rates of consumption. In view of the ban on coal exports it can be predicted that consumption will run at the seasonally corrected rate of about 190 million tons in the early part of the winter. To equal this, production would have to average about 3.85 million tons in non-holiday weeks.

In view of the greater experience of this summer's new recruits, and the average rate of 192 million tons' output for the summer months, it should not be impossible to achieve an output level of 190 million tons in the future.

[1] The actual uncorrected stocks then were 10.2 million tons.

[2] *Bulletin*, Vol. 8, No. 2.

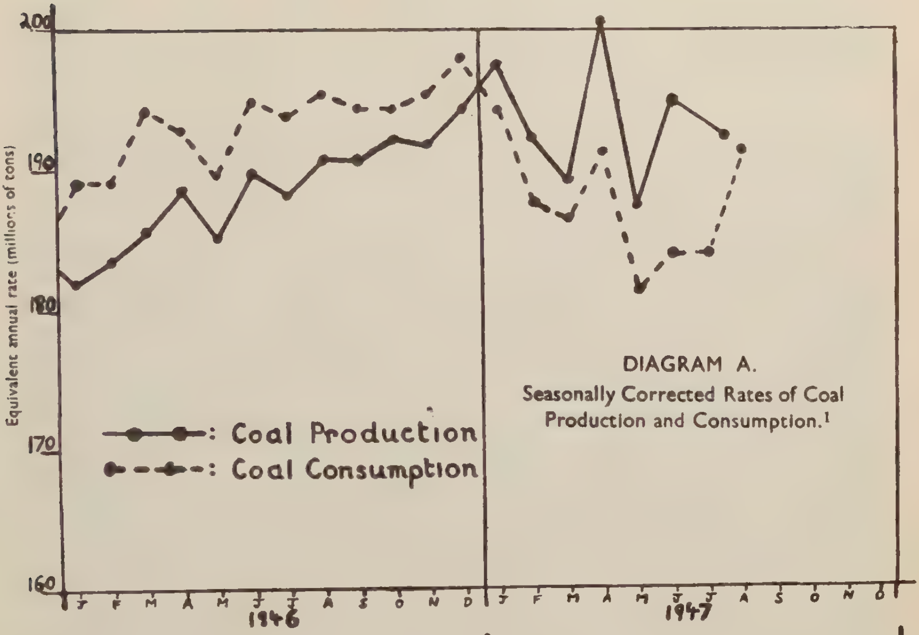

DIAGRAM A.
Seasonally Corrected Rates of Coal Production and Consumption.[1]

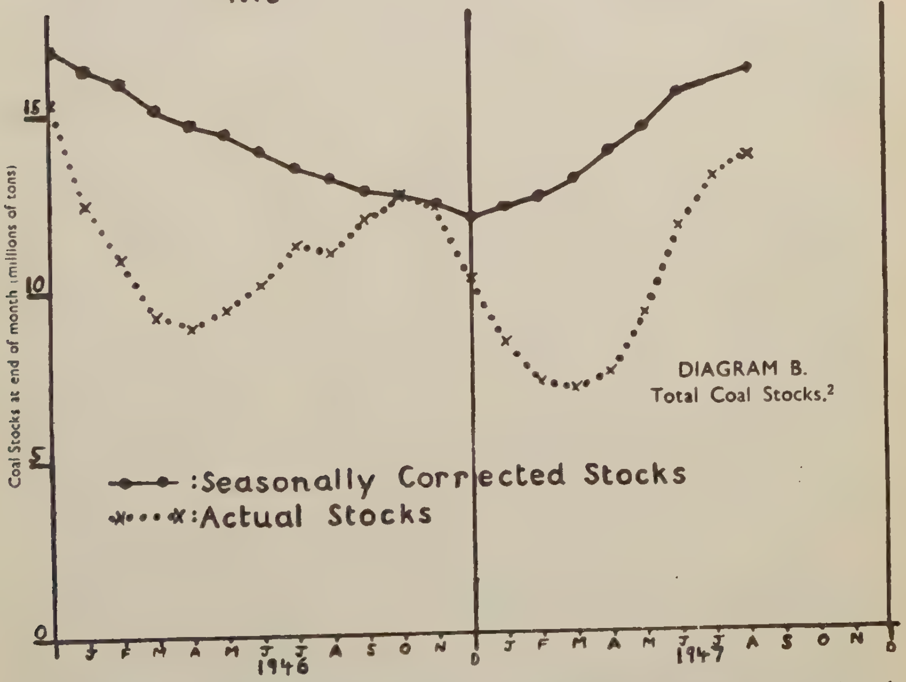

DIAGRAM B.
Total Coal Stocks.[2]

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[1] For July and August 1947 see footnote to Tables II and IV. [2] Seasonally corrected stocks are shown at the equivalent end-of-October level. For July 1947 see footnote to Table V.

The danger of a fall in miners' rations affecting output should, however, be taken into account. The failure to achieve 16 million tons total stocks, or consumption at higher levels than indicated (*e.g.* consumption at near last year's levels), or production at a lower rate, would be serious danger signals. For example, if consumption is at a corrected rate of 190 million tons and production is at 185 million tons (*i.e.* about 3.75 million tons weekly). March would see stocks of less than 8 million tons and possibly a repetition of last winter's industrial breakdown.

The expectations are, therefore, that unless something unforeseen happens (such as a major coal strike or a premature resumption of exports), there should be enough coal this winter for essential purposes, although the narrow margin of safety must be emphasised. Production of the order of 4 million tons in normal weeks (*i.e.* an equivalent annual rate of about 197 million tons) would provide stocks of over 15 million tons at the end of December and make possible a resumption of exports of a ' semi-essential ' nature in the New Year. It would be advisable to keep stocks at or near a seasonally corrected level of 16 million tons, *i.e.* at the actual levels shown above, so as to leave some margin of safety in case of strikes or unforeseen emergency.

It seems that coal is ceasing to be the major ' bottleneck ' in the economy.

D. Seers.

SOME COMPARISONS OF PRE-WAR AND POST-WAR PRODUCTIVITY

Published information concerning the productivity of labour in Great Britain is, of course, extremely scanty. Recently calculations have been made, on the basis of national income statistics, of pre-war and post-war productivity over the economy as a whole, or over the greater part of it; but there are no figures—except for coalmining—relating to specific industries. It is possible, however, on the basis of published data, to throw some light on the changes in productivity that have taken place between the pre-war and post-war periods in certain industries. These estimates are of an extremely crude nature, and almost every figure in our calculations has to be interpreted with considerable caution. Moreover, the industries concerned are neither numerous nor representative. But in spite of these limitations, our results give some indication, however approximate, of the change in output per man-hour in these industries since the war; and where our lack of information is so complete, some indication is perhaps better than none.

The method used has been to compare changes in man-hours worked with changes in output. This can be done in the case of eleven industries or trades, for which—quite fortuitously—both series can be compiled from published statistics. Most of the pre-war figures relate to 1938. However, in the case of iron and steel tubes and of wire, all figures relate to 1939, and those for carpets and linoleum to 1937. This is because no statistics of output in 1938 are available for those industries.

TABLE I

Employment and Weekly Hours worked in 1938, July 1945 and October, 1946.

Industry	1938		July 1945		October 1946	
	Empymt.	*Hours Worked*	*Emplymt.*	*Hours Worked*	*Emplymt.*	*Hours Worked*
Iron Ore	10,370	41.2	8,640	47.4	7,130	46.9
Pig Iron	15,180	48.0	15,900	50.5	16,900	49.1
Tinplate	24,680	40.0	12,450	45.1	13,200	43.1
Iron and Steel Tubes* ...	32,370	47.0	34,410	47.7	34,000	47.6
Wire, Wire Netting, etc.* ...	26,010	48.2	29,520	48.4	30,300	47.9
Brick, Tile, Pipe, Making ...	105,480	49.2	34,170	48.9	66,500	48.8
Cotton Spinning	193,040	(45.8)	111,430	(46.7)	138,900	(46.3)
Cotton Weaving	172,990	(45.8)	96,740	(46.7)	109,900	(46.3)
Rayon (Yarn Manufacture)	25,350	44.2	19,260	48.9	25,150	46.9
Carpets†	34,550	46.9	5,610	45.7	15,200	43.8
Linoleum†	12,720	49.1	6,140	50.2	8,500	47.5

* Pre-war figure relates to 1939, not 1938.
† Pre-war figure relates to 1937, not 1938.

The figures of *employment* for the pre-war year were obtained by taking the number of insured persons in each industry in July 1938,[1] and subtracting from this figure the average number of persons unemployed during the year. For July 1945, the same method was used: the number of persons in each of the industries registered as unemployed during that month was subtracted from the number of insured persons. Since the end of 1945 the Ministry of Labour has published monthly statistics of 'employment in industry in Great Britain', and these have been the source of most of the figures for October 1946. The figure for iron ore (which is not included in the Ministry of Labour list of industries for which monthly employment statistics are given) has been computed by subtracting the number of unemployed in the industry in October 1946, from the number of insured persons in July 1946. No separate figure for rayon yarn manufacture is given in the Ministry of Labour statistics, and employment in October 1946 has been estimated on the basis of the number of workers covered in the earnings inquiry of that month; in the case of this industry this method appears more accurate than that used in the case of iron ore. The pre-war statistics include, while the post-war exclude, women between 60 and 65 years of age.

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[1] 1939 in the case of iron and steel tubes and wire: 1937 in the case of carpets and linoleum.

Statistics of *hours* worked are taken from the published results of the Ministry of Labour earnings inquiries; the figure for 'all workers' has been used. For the pre-war period this figure is only doubtfully representative, since there was only one pre-war inquiry, which was carried out in October 1938. It has been assumed that the figures for the number of hours worked per week in this month can be taken as representative of 1938 as a whole.[1] In the case of most of the industries this assumption is probably not inaccurate, though since October 1938 was a month of relatively low activity and high unemployment, it is likely that if anything the average pre-war working week was rather longer. For July 1945 and October 1946 the statistics of hours relate only to those particular months.

Although the Ministry of Labour publishes separately the statistics of employment in cotton spinning and weaving, the earnings inquiries give details of the hours worked in the cotton industry as a whole. These figures have been used here both for spinning and for weaving. Similarly, in the case of tinplate, the employment figures are separate, but details of hours worked are given for the group 'tinplate, sheet steel, etc.'; these figures are taken as being representative of the hours worked in tinplate manufacture.

From Table I it is possible to calculate the average number of man-hours worked per week, in each of the industries listed, in a pre-war year, in July 1945, and in October 1946.

Figures of the output of these industries have been taken for the most part from the 'Monthly Digest of Statistics'. The figures for the cotton industry in 1938 are taken from the (1944) *Report of the Cotton Board Committee on Post-War Problems*. Square yards were converted into linear yards, to make the series comparable, on the basis of the conversion factor indicated by the Export Trade Accounts for 1938, where exports of cotton piece goods are expressed both in square and in linear yards. In the case of carpets, the pre-war figure was obtained from the result of the *Import Duties Act Inquiry* of 1937. For linoleum the 1937 figure is taken from the *Working*

[1] 1939 in the case of iron and steel tubes and wire: 1937 in the case of carpets and linoleum.

Table II

Man-hours worked per week in 1938, July 1945 and October 1946.

Industry	*1938*	*July 1945*	*October 1946*
Iron Ore	427,240	409,540	334,400
Pig Iron Manufacture	728,640	802,950	829,790
Tinplate	987,200	561,500	568,920
Iron and Steel Tubes*	1,521,390	1,641,360	1,618,400
Wire, Wire Netting, etc.*	1,253,680	1,428,770	1,451,370
Brick, Tile, Pipe, etc. Making	5,189,620	1,670,910	3,245,200
Cotton Spinning	8,841,230	5,203,780	6,426,440
Cotton Weaving	7,922,940	4,517,760	5,088,370
Rayon (Yarn Manufacture)	1,120,470	941,810	1,179,530
Carpets†	1,620,390	256,380	665,760
Linoleum†	624,550	308,230	403,750

* Pre-war figures relate to 1939. † Pre-war figures relate to 1937.

Party Report. The output of the linoleum industry consists of felt base as well as of linoleum, and the output of felt base has therefore been expressed in terms of its equivalent in linoleum, on the basis of the relative prices obtaining in 1937 and in 1945–46. For 1937 a square yard of linoleum has been considered as equivalent to approximately 3.4 square yards of felt base (this calculation is based on data given in the Working Party Report). During the war the relative price of felt base increased, and it appears more reasonable (again on the evidence of statistics given in the Report) in estimating output in 1945 and 1946, to treat one square yard of linoleum as the equivalent of two square yards of felt base.

In the case of pipes no pre-war figure is available, and 1945 has therefore been taken as the base period. The figures for tiles refer only to clay roofing tiles. So far as wire is concerned, the ' Monthly Digest' gives statistics of output, but since the Ministry of Labour employment figures also cover those engaged in the production of wire netting and similar products, it is possible that these two series are not strictly comparable.

These figures do not take into account changes in quality.

Table III

Output in 1938, July 1945, and October 1946 (*Weekly averages except where otherwise indicated*)

Industry	*1938*	*July 1945*	*October 1946*
Iron Ore ('000 tons)	228	274	230
Pig Iron ('000 tons)	130	135	156
Tinplate ('00 tons)	11.7	10.2	13.4
Iron and Steel Tubes ('000 tons)	13.0	10.1	15.9
Steel wire* ('000 tons)	11.2	10.1	12.7
Bricks (millions ; monthly figures)	650	101	442
Tiles ('000 squares of clay roofing tiles ; monthly)	126	21.1	63.4
Pipes ('000 tons of stoneware pipes ; monthly)	—	19.3	39.3
Cotton spinning (million lbs. of cotton yarn)	20.19	11.22	14.10
Cotton Weaving (million linear yards of woven cotton fabrics)	54.4	25.3	33.7
Rayon Yarn (million lbs. ; monthly)	11.15	13.62	18.27
Carpets† ('000 sq. yds. ; monthly)	3,233	422	1,820
Linoleum† ('000 sq. yds. ; monthly)	7,331	2,420	4,092

†Pre-war figure relates to 1939. †Pre-war figure relates to 1937.

Finally, the two series (of man-hours worked and of output) are expressed in index number form, with the pre-war year as the base period, and compared.

TABLE IV

Index Numbers of Man-hours worked and of Output

Industry	*Man-hours worked* 1938	July 1945	October 1946	*Output* 1938	July 1945	October 1946
Iron Ore	100	95.9	78.3	100	120.2	100.9
Pig Iron	100	110.2	113.9	100	103.8	120.0
Tinplate	100	56.9	57.6	100	87.2	114.5
Iron and Steel Tubes*	100	107.9	106.4	100	77.7	122.3
Wire, Wire Netting, etc.*	100	114.0	115.8	100	90.2	113.4
Bricks	100‡	32.2‡	62.5‡	100	15.5	68.0
Tiles				100	16.7	50.3
Pipes				—	100	203.6
Cotton Spinning	100	58.9	70.7	100	55.6	69.8
Cotton Weaving	100	57.0	64.2	100	46.5	61.9
Rayon Yarn Manufacture	100	84.1	105.3	100	122.2	163.9
Carpets†	100	15.8	41.1	100	13.1	56.3
Linoleum†	100	49.4	64.6	100	33.0	55.8

* Pre-war figures relate to 1939.
† Pre-war figures relate to 1937.
‡ No separate employment figures are available of those engaged in the manufacture of bricks, tiles and pipes respectively.

From Table IV it is possible to construct index-numbers showing changes in output per man-hour in the industries concerned. No figure is given for pipes, because of the absence of information concerning pre-war output.

TABLE V

Index Numbers of Output per Man-hour

Industry	*Output per Man-hour* 1938	July 1945	October 1946
Iron Ore	100	125	129
Pig Iron	100	95	105
Tinplate	100	153	197
Iron and Steel Tubes*	100	72	115
Wire, Wire Netting, etc.*	100	79	97
Bricks	100	47	110
Tiles	100	53	81
Cotton Spinning	100	95	99
Cotton Weaving	100	81	97
Rayon Yarn Manufacture	100	145	156
Carpets†	100	81	137
Linoleum†	100	67	86

* Pre-war figures relate to 1939.
† Pre-war figures relate to 1937.

It will be seen that in July 1945 productivity was lower than in the pre-war period, so far as most of these industries were concerned, but that in every case there was an increase in productivity between July 1946 and October 1946. In those industries where output and employment fell as a result of the war, there was in every case a marked fall in productivity (though in the case of rayon and of iron ore employment fell slightly during the war while output actually increased). This fall in productivity can probably be explained, in part at least, by the increase in the proportion of 'oncost' workers often associated with a reduction in output, and by the higher average age of workers. A recent investigation reveals that developments in the United States during the war were similar: 'In almost three-fourths of the industries in which productivity declined [between 1941 and 1945], production also fell.'[1] The same investigation shows that in the cotton and rayon industries—the only two of our industries for which roughly comparable figures are given for the United States—the changes in productivity were similar to those indicated by our figures. In the case of cotton goods, productivity was almost 2 per cent lower in 1945 than in 1940; in the case of rayon goods,[2] productivity increased over the same period by over 30 per cent.

P. D. HENDERSON.

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[1] *Monthly Labour Review*, December 1946, p. 900.

[2] Our figures relate only to the manufacture of rayon yarn.

TABULAR APPENDIX

EDITORIAL NOTE

Tables comparing the broad trends of production, prices and wages, the volume of foreign trade and the supply of coal for a number of European countries, the United Kingdom and the U.S.A. are given below. For some countries more up-to-date figures are available than for others. These time lags will, it is hoped, be reduced in future and the tables will be extended when more information becomes available. The index numbers are based as far as possible on 1938.

Explanation of symbols :

... the figure is not available.
( ) figures provisional or approximate.
— figure is negligible.

TABLE I

Industrial Production (or Employment)

Index numbers : 1938=100.

Index Numbers	1939	1945	1946	1947					
				Jan.	Mar.	Apr.	May	June	July
Industrial Production[1]									
U.S.A.[2]	122	228	191	212	213	210	208	206	200
France	...	46	81	89	93	95	...	...	...
Belgium	105	38	88	105	102	109	107	105	...
Netherlands	111	31	73	85	89	89	88	87	...
Denmark	105	79	97	105	98	99	100	100	102
Sweden	106	91	110	111	110	112	111	111	...
Norway[2]	107	69	100	109	113	113	122	...	...
Finland[2]	89	45	61	71	75	75	76	76	...
Poland[3]	...	48[4]	91	105	112	112	113	...	...
Bulgaria	106	118	122	99	124	123	134	...	...
Italy[5]	100	...	47	43	47	52	61	...	...
Germany :[6]									
British Zone	...	...	31	28	30	33	34	...	...
American Zone ...	...	...	37	34	38	46	49	49	...
Industrial Employment									
Switzerland[7]	99	110	123	...	130	...	...	131	...
Czechoslovakia[8] ...	...	...	86	88	91	92	...	...	...
Great Britain[9]	100	100	97	103	102	103	103	103	104

Sources : Official Statistics. For *Belgium* : Institut de Recherches Economiques et Sociales, Louvain ; for *Sweden* : Sveriges Industriforbund ; for *Finland* : Unitas ; for *Germany* : Control Commission (British Element) ; for *Italy* : Confederazione Generale dell' Industria Italiana.

[1] Mining and Manufacturing, except Denmark (manufacturing only), Finland (export industries) and Netherlands (mining, manufacturing and public utilities).

[2] Adjusted for seasonal variations.

[3] 1937=100. [4] May–December. [5] 1939=100. Provisional figures.

[6] 1936=100.

[7] Wage earners employed in manufacturing and building. Quarterly figures.

[8] Total employment in manufacturing, mining and building. 1937=100.

[9] Employment (incl. employers and self-employed) in manufacturing. June 1939=100 ; all annual figures refer to June.

TABLE II

Wholesale Prices[1]

Index numbers : 1938=100.

					1947					
Index Numbers		1939	1945	1946	Jan.	Mar.	Apr.	May	June	July
U.S.A.	a[2]	98.	134	154	180	190	188	187	188	190
U.K.	a	101	167	173	179	181	185	186	187	191
	b[3]	91.5	138	142	148	149	153	154	154	158
France	a	105	375	648	874	860	847	946	904	881
	b	92	(275)	190	255	252	248	275	265	257
Holland	a	102	177	245	262	264	264	264	262	265
	b	99	(122)	169	180	181	181	181	180	182
Switzerland	a	104	206	201	204	206	207	207	208	208
	b	103	...	204	208	210	211	211	212	212
Sweden	a	103	173	168	175	177	178	179	180	180
	b	98	...	173	193	195	196	198	199	199
Denmark	a	105	190	188	200	200	202	204	205	210
	b	98	...	180	191	191	193	195	196	201
Norway	a	102	177	168	171	172	172	174	175	179
	b	97	...	138	140	141	141	143	144	147
Finland	a	106	386	605	635	669	675	682	688	704
	b				217	229	231	233	235	241
Czechoslovakia	a	115	173	295	313	312	306	307	307	313
	b	114	...	170	181	180	176	177	177	181
Italy	a	...	...	...	3757	4144	4533	5203	5310	...
	b	...	...	...	119	128	127	128	136	...

[1] Prices expressed in national currencies and in U.S. dollars at official rates.
[2] a=in national currency.
[3] b=in U.S. currency.

TABLE III

Wages.

				1947						
Index Numbers[1]	1939	1945	1946	Jan.	Feb.	Mar.	Apr.	May	June	July
U.S.A.[2]	101	163	173	184	186	188	189	192	194	197
United Kingdom[3]	...	149	162	165	165	165	165	166	167	167
Switzerland[4]	100	146	160	...	170	...	...	172	...	...
France[5]	...	285	400	...	...	...	434	...	...	...
Netherlands[6]	100	131	163	165	166	165	165	165	167	...
Czechoslovakia[7]	100	182	304	309	309	309	309	313	315	...

[1] Base periods : U.S.A. and France : 1938=100 ; United Kingdom : September, 1939=100 ; Switzerland : Jan.–August, 1939=100 ; Netherlands : 1938-9=100 ; Czechoslovakia : March, 1939=100.

[2] Average hourly earnings in manufacturing.

[3] Weekly wage rates ; Ministry of Labour (all industries).

[4] Hourly rates in industry ; quarterly figures.

[5] Hourly rates in Paris of unskilled workers in industry. The annual figures refer to October.

[6] Hourly rates in industry. [7] Hourly rates in manufacturing.

TABLE IV

Foreign Trade.

Volume Index (Deflated Values: 1938=100).

Index Numbers		1939	1945	1946	1947 Jan.	Mar.	Apr.	May	June	July
U.S.A.	Imports ...	114	130	139[1]	166	124	130	128	130	...
	All Exports ...	105	183	191	233	272	261	282	246	...
U.K.	Imports ...	97	62	69	...	67[2]	...	...	77[3]	...
	Exports ...	94	46	99	...	101[2]	...	...	102[3]	125
France	Imports ...	88	34	112	97	122	120	179	132	...
	Exports ...	99	10	43	66	66	92	89	92	...
Switzerland	Imports ...	117	31	104	120	142	149	154	148	153
	Exports ...	96	57	101	103	119	109	111	126	123
Denmark	Imports ...	98	21	86	63	53	72	98	121	91
	Exports ...	101	32	60	69	44	76	91	73	79
Sweden	Imports ...	109	21	67	92	68	86	111	...	...
	Exports ...	106	56	78	81	51	72	76	...	...
Norway	Imports ...	111	46	78	114	129	135	129	146	...
	Exports ...	108	19	61	72	67[1]	76[1]	96	114	...
Poland	Imports[4]	...	97[5]	160	107	...	...	...	...	...
	Exports ...	...	17[5]	34	40	...	...	...	...	...
Finland	Imports ...	86	12	35	66	48	42	46	...	54
	Exports ...	95	17	45	56	40	43	56	...	57
Hungary	Imports ...	...	1	16	42	54	43	47	53	48
	Exports ...	...	—	15	22	27	32	24	27	30

[1] Corrected. [2] Average of 1st quarter. [3] Average of 2nd quarter.
[4] Incl. U.N.R.R.A. deliveries. [5] Monthly average of 3rd and 4th quarter.

TABLE V

COALMINING AND SUPPLIES

A. *Hard Coal. Output and Employment*

Monthly figures or averages[1]

	U.S.A.[2]	U.K.	West Germany[3]	France[3]	Belgium	Holland	Poland	Czechoslovakia
Employment ('000)[4]								
Av. 1946	...	699	235	313	158	34	182	55
1947 May	...	715	283	330	166	38	192	46
June	...	717	283	328	163	38	191	45
July	...	719	287	326	163	38	192	...
Aug.	...	...	296	324	159	37	193	...
Aug. as % of 1935–38...	...	93[5]	93	144	115	112	130	135[6]
Output (Mill. m. tons)								
Av. 1946	44.8	16.0	5.1	3.9	1.9	0.7	3.9	1.2
1947 May	55.7	19.3[7]	6.0	4.0	2.1	0.8	4.5	1.3
June	47.5	19.6[7]	6.2	3.4	2.0	0.8	4.6	1.2
July	39.7	13.5	6.9	4.0	1.8	0.9	5.0	1.3
Aug.	...	13.7	7.0	3.7	1.8	0.8	5.1	...
Aug. as % of 1935–38...	117[5]	76	62	96	77	73	101	115[5]
Output per manshift (tons)[8]								
1947 April	...	1.03	0.90	0.60	0.60	0.99	1.21	1.10
May	...	1.08	0.89	0.61	0.59	0.98	1.20	1.08
June	...	1.08	0.89	0.58	0.58	0.99	1.22	1.09
July	...	1.06	0.91	...	0.57	1.00	1.24	...
July as % of 1935–38 ...	...	91	56[9]	68[6]	73	57	72	79[6]

B. *Production of Lignite*[10]

Monthly figures or averages

Thousand metric tons	Germany		Czechoslovakia
	West Zone	East Zone	
Average 1946	4,224	9,081	1,623
1947 March	4,934	7,903	1,893
April	4,435	8,015	1,869
May	4,486	8,256	1,884
June	4,726	...	1,814
July	5,113	...	1,862
July as % of 1935–37	106	...	137

C. *Total Imports of Solid Fuels including Bunkers* (*ton for ton*)

Monthly figures or averages.

Thousand metric tons	Av. 1946	1947						Aug. as % of 1935–38
		Mar.	April	May	June	July	Aug.	
France... ...	867	912	1020	1347	1396	1609	1829	92
Belgium ...	262	368	354	442	540	396	589	112
Holland ...	268	385	369	394	407	365	325	46
Luxembourg	154	150	169	182	193	217	202	79
Norway ...	157	170	148	268	360	296	227	89
Denmark ...	314	185	315	453	578	442	512	108
Sweden ...	287	100	220	453	602	755	636	97
Switzerland ...	128	192	160	204	206	212	207	76
Italy	471	505	642	792	1050	1008	866	79
Finland ...	68	5	9	91	173	190	...	131[5]
Portugal ...	48	81	68	85	75	105	88	81

D. *Exports of Solid Fuels excluding Bunkers* (*ton for ton*)

Monthly figures or averages

Thousand metric tons	Av. 1946	1947						July as % of 1935–38
		Jan.	March	April	May	June	July	
U.S.A. ...	4105	3520	4320	4940	7630	...	...	765[11]
Thereof to Europe ...	1370	1491	2044	2024	2820	3380	3293	...
U.K.	385	210	30	30	73	75	69	2
West Germany	1089	659	953	754	921	1132	930	33
Poland ...	1277	1546	770	1480	2122	2178	2513	...
Czechoslovakia	55	104	114	124	111	115	...	34[6]
France... ...	32	42	35	34	55	47	32	32
Belgium ...	78	118	139	179	181	171	226	44
Holland ...	36	41	20	42	48	61	46	9

Source : European Coal Organisation ; United Nations, Monthly Bulletin of Statistics.

[1] Calendar months. [2] Incl. a small quantity of lignite.

[3] British and French zones (see also footnote 8).

[4] Underground and surface workers, excluding office staff.

[5] July. [6] June. [7] Five weeks.

[8] Overall. The figures for Germany refer to the British zone only.

[9] Eighty-seven per cent in the French zone.

[10] Conversion rate for Germany : 9 units lignite = 2 units coal ; for Czechoslovakia ; 17 units lignite = 10 units coal.

[11] May.